DETAILED ACTION

The examiner for your application in the USPTO has changed. Examiner Abigail Fisher can be reached at 571-270-3502.

Due to the determination of the pre-brief conference, the rejections and the finality of the rejections of the last Office action are withdrawn and prosecution is reopened.

Claims 2, 28, 54-55, 57 and 61-64 stand cancelled. Claims 1, 3-27, 29-53, 56, and 58-60 are pending. Claims 20-26 and 45-51 are withdrawn as being directed to a non-elected invention. Claims 1, 3-19, 27, 29-44, 52-53, 56 and 58-60 are directed to the elected invention.

The examiner notes the previous election of paclitaxel as the active, water as the polar solvent, spearmint oil as the essential oil, gentisic acid as the dissolution/solublization agent, and pluronics as the surfactant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Applicant Claims

2. Determining the scope and contents of the prior art.
3. Ascertaining the differences between the prior art and the claims at issue, and resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-19, 27, 29-44, 52-53, 56, 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landh et al. (US Patent No. 5531925) in view of Benet et al. (US Patent No. 5716928, cited in the Office action mailed on April 6 2006) and Yau et al. (US Patent No. 5541287) as evidenced by The Merck Index (2006).

Applicant Claims

Applicant claims a composition comprising a structured fluid selected from the group consisting of a reversed cubic liquid phase and a reversed hexagonal liquid crystalline phase, and a combination thereof comprising a polar solvent, a surfactant, and a essential oil or a dissolution/solublization agent or both; and a compound that is present in an effective amount in said structured fluid.

Determination of the Scope and Content of the Prior Art (MPEP §2141.01)

Landh et al. is directed to particles, especially colloidal particles, made from reversed cubic, hexagonal or intermediate phases, or L3 phases, or mixtures thereof (column 7, Lines 51-54). The invention of Landh et al. is in the field of lipid-based dispersed vehicles representing novel drug delivery systems (column 7, Lines 61-62). The particles according to the invention comprise an interior phase of a non-lamellar lyotropic liquid crystalline phase selected from the group consisting of a reversed cubic liquid crystalline phase, a reversed intermediate liquid crystalline phase and a reversed

hexagonal liquid crystalline phase, or a homogeneous L3 phase, or any combination thereof, and surface phase selected from the group consisting of a lamellar crystalline phase and a lamellar liquid crystalline phase, or an L3 phase, or any combination thereof (column 8, Lines 27-36). The phases are prepared by a novel fragmentation. The fragmentation procedure guarantees the coexistence of the phase making up the interior, the phase making up the surface, and the solvent-rich solution phase. The solvent rich solution phase is rich in water or any other polar solvent (column 8, lines 41-56). Reversed cubic liquid crystalline phase can be generally fragment by the incorporation of fragmentation agents belonging to the group of block copolymers with a hydrophilic lipophilic balance greater than 15, examples include poloxamers (column 10, liens 30-44). Landh et al. teach that the invention is well suited to the formulation and delivery of hydrophobic compounds that have limited aqueous solubility (column 20, lines 3-6). The invention is not restricted to any particular route of administration. Administration can be made by intravenous, intramuscular, intranasal, ocular, sublingual, subcutaneous, oral, rectal, vaginal, or dermal routes, or regionally such as through intraperitoneal, intraarterial, intrathecal and intravesical routes (column 20, Lines 48-53).

Landh et al. also teach the particles being in a pharmaceutical composition consisting of the particles and a pharmaceutically acceptable carrier.
(See column 32, Claim 19).

Landh et al. teach the invention's applicability in the field of cancer therapy. The invention of Landh et al. provides prolonged circulation as compared to the free drug,

protection and stabilization of the drug, circumvention of certain cell membrane barriers, and amplification of the drug effect due to targeted drug deliver. Specific cancer therapeutics include taxol (column 25, section 4.1.6). As evidenced by The Merck Index, Taxol is one of the brand names of paclitaxel.

Ascertainment of the Difference Between Scope the Prior Art and the Claims (MPEP §2141.012)

Landh et al. does not specify the incorporation of an essential oil. However, this deficiency is cured by Benet et al.

Benet et al. is directed to the use of essential oils to increase the bioavailability of oral pharmaceutical compounds. It is disclosed that essential oils were found to increase drug bioavailability by inhibiting drug biotransformation (column 2, lines 52-54). Essential oils listed as suitable include clove bud and spearmint (table 1). The essential oils are coadministered with the drug to provide the increased drug bioavailability. Coadministration can occur with the same delivery vehicle or with different delivery vehicles (column 25, 27-28). Pharmaceutical compounds listed as having their bioavailability increased with coadministration of an essential oil include steroids and taxol (claim 5).

Landh et al. does not specify the incorporation of gentisic acid. However, this deficiency is cured by Yau et al.

Yau et al. is directed to methods, compounds, compositions and kits to pretargeted delivery of diagnostic and therapeutic agents. Gentisic acid is disclosed as an effective radioprotectant (example 18).

Finding of Prima Facie Obviousness Rational and Motivation

(MPEP §2142-2143)

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landh et al. and Benet et al. and utilize essential oils such as spearmint in the invention of Landh et al. One of ordinary skill in the art would have been motivated to incorporate essential oils into the invention of Landh et al. because Benet et al. indicate that essential oils increase the bioavailability of oral pharmaceutical compounds when coadministered. Additionally, as taught by Benet et al. the essential oils can be coadministered with the same delivery vehicle of the drug. Pharmaceutical compounds listed by Benet et al. as having increased drug bioavailability is taxol. Since Landh et al. is also directed at delivering cancer therapeutics, one of ordinary skill in the art would expect that the incorporation of essential oils would have at least an additive effect in terms of drug delivery.

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landh et al. and Yau et al. and utilize gentisic acid in the composition. One of ordinary skill in the art would have been motivated to utilize gentisic acid because it is taught by Yau et al. as being a radioprotectant. Therefore, when utilizing the invention of Landh et al. for cancer treatment, which besides chemotherapy includes radiology, it would have been obvious to one of ordinary skill in the art to include gentisic acid which is a known radioprotectant.

It would have been obvious to one of ordinary skill in the art to combine the teachings of Landh et al., Benet et al., and Yau et al. and utilize both essential oils and gentisic acid in the composition of Landh et al. One of ordinary skill in the art would

have been motivated to include these agents because Landh et al. is directed to delivering cancer therapeutics and Benet et al. teaches that essential oils increase the bioavailability of taxol and Yau et al. teaches that gentisic acid is a radioprotectant. Therefore, one of ordinary skill in the art would expect that the incorporation of these components in the composition of Landh et al. would have at least an additive effect in cancer therapy.

Absent any evidence to the contrary, and based upon the teachings of the prior art, there would have been a reasonable expectation of success in practicing the instantly claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding the functional imitations of claims 5-9, 12-13, 27, 31-34, 37-39, and 53, Benet teaches the elected species of essential oil, spearmint oil, and Yau teaches the elected species of dissolution/solublization agent. Therefore, these species necessarily posses the functional limitations of the instant claims.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29

USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3-19, 27, 29-44, 52-53, 56 and 58-60 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7, 9-15, 17-36, 38-39 and 74-75 of copending Application 10/460659 in view of Yau et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims overlap in scope.

The instant application claims a composition comprising a structured fluid selected from the group consisting of a reversed cubic liquid phase and a reversed hexagonal liquid crystalline phase, and a combination thereof comprising a polar solvent, a surfactant, and a essential oil or a dissolution/solublization agent or both; and a compound that is present in an effective amount in said structured fluid. Copending '937 claims all the instant limitations in the dependent claims.

Copending '659 claims a composition comprising a reversed cubic phase or reversed hexagonal phase material, or a combination thereof comprised of a polar solvent, a surfactant, and a non-paraffinic liquid with a high octanol-water partition coefficient which does not qualify as a surfactant; and a compound that is difficultly

soluble in water solubilized in said reversed cubic phase or reversed hexagonal phase material, or a combination thereof.

Copending '659 does not claim the inclusion of gentisic acid in the composition. However, this deficiency is cured by Yau et al.

Yau et al. is directed to methods, compounds, compositions and kits to pretargeted delivery of diagnostic and therapeutic agents. Gentisic acid is disclosed as an effective radioprotectant (example 18).

It would have been obvious to one of ordinary skill in the art to combine the teachings of copending '659 and Yau et al. and utilize gentisic acid. One of ordinary skill in the art would have been motivated to include gentisic acid if the difficulty soluble in water agent was paclitaxel and the composition was being utilized for cancer treatment. Since gentisic acid is known as being a radioprotectant as taught by Yau et al., one of ordinary skill in the art would expect at least an additive effect with the incorporation of gentisic acid in a composition that is being utilized for cancer treatment.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 3-19, 27, 29-44, 52-53, 56 and 58-60 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-84 of U.S. Patent No. 6991809. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims overlap in scope.

The instant application claims a composition comprising a structured fluid selected from the group consisting of a reversed cubic liquid phase and a reversed hexagonal liquid crystalline phase, and a combination thereof comprising a polar solvent, a surfactant, and a essential oil or a dissolution/solublization agent or both; and a compound that is present in an effective amount in said structured fluid. Copending '937 claims all the instant limitations in the dependent claims.

Patent '809 claims a particle or material comprising a distinct nanostructured nonlamellar liquid crystalline material. The crystalline material as claimed comprises a reversed hexagonal phase, a reversed bicontinous cubic phase, a reversed discrete cubic phase or a reversed intermediate phase. The material further comprises a stabilizing layer selected from the group consisting of a charged moiety, a polymer, and a surfactant. The liquid is an oil and said oil is selected from a group consisting of benzyl benzoate, estragole, eugenol, isoeugenol, linalool, and essential oils. The material as claimed is pharmaceutically acceptable for injection or oral delivery. The liquid phase includes at least one of an oil and polar solvent. The particle or material further comprises an active agent. One particular active agent claimed is a bioactive agent. Bioactive agents claimed include antineoplastic agents.

Patent '809 does not claim a combination of a liquid crystalline material, polar solvent, surfactant, essential oil, and bioactive material. Patent '809 does not claim gentisic acid.

It would have been obvious to one of ordinary skill in the art to combine the liquid crystalline material with a polar solvent, surfactant, essential oil and bioactive material.

One of ordinary skill in the art would have been motivated to make this combination because Patent '809 claims that the liquid crystalline material comprises at least one oil and a polar solvent. The list of oils that one of ordinary skill in the art has to choose from is small, six different oil groups, that one of ordinary skill in the art can readily envision a particle or material comprising each of the oils. Therefore, the subject material of the instant claims and Patent '809 overlap in scope.

It would have been obvious to one of ordinary skill in the art to combine the teachings of Patent '809 and Yau et al. and utilize gentisic acid. One of ordinary skill in the art would have been motivated to include gentisic acid if the bioactive agent was an antineoplastic agent and the composition was being utilized for cancer treatment. Since gentisic acid is known in the art as being a radioprotectant as taught by Yau et al. One of ordinary skill in the art would expect at least an additive effect with the incorporation of gentisic acid in a composition that is being utilized for cancer treatment.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABIGAIL FISHER whose telephone number is (571)270-3502. The examiner can normally be reached on M-Th 9am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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